

XIX.—SOME NEUROPTEROID INSECTS FROM NORTH
BORNEO, PARTICULARLY FROM MT. KINABALU,
13,455 ft.

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(Figures 1-20).

The Neuropteroid insects collected in North Borneo are of particular interest because of the series obtained by Mr. H. M. Pendlebury on Mt. Kinabalu. Several of the genera were not known from any of the neighboring islands, but only from the Asiatic mainland, while a number of others are also known only from Java or Sumatra. The new Dilarid is the first taken away from the mainland, the new *Micrasema* also. *Goerinella*, *Paduniella*, *Polyplectropus* are found in Java as well as southern Asia. The *Neopanorpa* is also the first known away from South Asia, Sumatra and Java, except one is known from Formosa. One of the new Osmylids was previously known only by two species from Formosa; the two other new Osmylids were both known from one species from Java. The *Berothinae* also show relationship with the Malay Peninsula through Java.

The species from the lowlands of North Borneo obtained by Messrs. C. Boden Kloss and H. M. Pendlebury are the same or of the same genera as are common in the Philippines, and often in many parts of the Oriental Region. These forms were not in the Mt. Kinabalu collection except from low altitudes, as three thousand feet. Above that the Neuropteroids show definitely a relationship to South Asia and Java.

PERLIDÆ.

Peltoperla concolor sp. n.

Brownish-yellow on head and pronotum, thorax and abdomen as well as legs and setae pale yellowish. Wings slightly brownish, veins mostly pale, some near costal edge toward tip darker. Head short and broad; ocelli about three diameters apart, and as near or nearer to the eyes, latter globose; no distinct boss; pronotum broader than head and overhangs head up to eyes, almost twice as broad as long, slightly narrowed behind. Forewings long, about 15 or more costals before end of subcosta, eight or more beyond; radial sector three branched beyond anastomosis, radial sector arising almost before second third of wing, four or five divisions of median vein; the end of cubitus is three forked; five or six median cross-veins, six or seven cubital ones; setae very short.

The tip of male abdomen is turned abruptly upward showing a large concave area reaching to tip, the lateral edges greatly elevated, and on middle of segment before it is a small rounded lobe.

Expanse 30 mm.

From Mt. Kinabalu, Borneo; Kamborangah, 7,200 ft., March, April; all males. A female from Kiau, 3,000 ft., is darker on head, pronotum and wings, and the legs dark brown, except the basal part; the ocelli seem smaller and farther apart; it probably is the female of this species. A species of this genus occurs on the Philippines.

Neoperla borneensis Enderl.

From Kayabau 600 ft., near Mt. Kinabalu, 8 May and Mt. Kinabalu, Kiau, 3,000 ft., 31 March.

Nemoura sp.

Specimens in poor condition from Mt. Kinabalu, Kamborangah, 7,200 ft., March.

SIALIDÆ.

Neuromus testaceus Rambur

From Mt. Kinabalu, Kiau, 3,000 ft., 9 April; widely spread in the Malaysian subregion.

Protohermes dichrous Brauer

From Mt. Kinabalu, Kiau, 3,000 ft., 13 April. Already known from Borneo, also in Java.

Protohermes uniformis sp. n. (figs. 19, 20.)

Pale yellowish, tips of mandibles and tips of palpi black; antennæ dark beyond basal part; a black line each side on back of head and a similar line on each side of the pronotum, mesonotum dark in middle of joint; legs pale, tarsi darker; abdomen brown. Wings pale, very faintly fumose, with scattered whitish patches, mostly before middle; veins in these places yellowish, elsewhere veins darker; hind wings pale, unmarked, veins pale.

Fore-wings with 28 to 30 costals; six or seven cross-veins between radius and radial sector; branches of median vein normal; anal cell fully twice as long as broad; in hind wings upper branch of median runs into radial sector without cross-vein back to median. Superior male appendages very broad, even to the tips, lower appendages scarcely connected on basal part.

Length fore-wing 36 mm., width 12 mm. ♂.

From Mt. Kinabalu, Lumu Lumu 5,500 ft., April.

Protohermes bellulus sp. n. (fig. 18.)

Pale yellowish; tips of mandibles and antennæ beyond second joint black; two spots on back of head, two

elongate spots on each side of the pronotum, black; sometimes a faint spot each side on mesonotum dark; abdomen brown; legs pale yellowish, tarsi more brown. Wings whitish hyaline, with some faint darker clouds, some more distinct ones tend to form a band across wing at basal third, before and beyond being pale areas; stigma slightly darkened; veins yellowish in pale places and dark elsewhere, the costals nearly all black. Hind wings pale, the veins mostly pale, but a few are dark, and some of the costals near middle are dark.

In fore-wing about 28 to 32 costals; six to eight cross-veins between radius and radial sector; the cubitus forks a little beyond cross-vein to median; lower branch of median forks once, upper branch forks and each forks again (as usual) anal cell fully twice as long as broad.

In hind wings the upper branch of the median runs sinuously into the radial sector, without any cross-vein back to median.

Superior male appendages have a long slender tip; the inferior appendages rather broadly connected on basal part.

Length fore-wing 32 (♂) to 40 (♀) mm.

Breadth fore-wing 11 (♂) to 13 (♀) mm.

From Borneo; Mt. Kinabalu, Lumu Lumu, 5,500 ft., April; Kiau, 3,000 ft., April; and Lobang, 4,000 ft., April.

DILARIDÆ.

Rexavius grandis sp. n.

♂ Yellowish; head unmarked, pronotum with a dark spot in front and one each side (often faint), thoracic notum slightly marked with dark; abdomen pale; antennæ brownish-yellow, the branches rather darker; legs pale, densely clothed with yellow hair. Fore-wings of the usual faint reddish or purplish hue; veins partly dark, partly pale, subcosta and radius with short dark marks, gradates black, faint clouds around them and often over forkings of veins or other cross-veins, all veins with mostly erect, long, and mostly black hair, but in pale areas with yellowish hair, costa with much yellow hair toward tip; hind-wings with almost all veins pale, forkings and some cross-veins dark, costal tip rather more yellowish, hind fringe toward base very long.

Structure very similar to *R. nietneri*; three bristle-bearing tubercles on vertex; the antennæ with about thirty branches, many of those on basal part as long as front tarsi; pronotum with two transverse tubercles near front, and one each side behind. Fore-wings large and broad; several costals forked; about seven to twelve cross-veins

between subcosta and radius; second radial sector forked six times, about ten cross-veins back to radius; four cross-veins to first radial sector; four to five between medius and first radial sector, two between forks of medius, two from medius to cubitus, two or three between forks of cubitus, one (near base) from cubitus to first anal; first radial sector forks at outer gradates; lower branch of cubitus forks three or four times. Hind-wing with radial sector forked six times; one series of about six gradates.

Length of fore-wing 11 to 16 mm.

Breadth of fore-wing 4.75 to 6 mm.

Several males from Borneo; Mt. Kinabalu, Kamborangan, 7,200 ft., March and April.

CHRYSOPIDÆ.

Chrysopa splendida Weele.

From Kudat, 10 Sept. Also occurs in Philippines, Java, Malay Peninsula.

Chrysopa bakeri Bks.

From Samawang, July; Kudat, Sept., and Bettotan, Aug. Described from Borneo.

Chrysopa rizali Bks.

From Samawang, July. Known from several parts of the Malaysian subregion.

Chrysopa caliptera Bks.

From Samawang, July, described from Borneo.

Chrysopa atrioris Bks.

From Bettotan, August, and Kudat, Sept. Described from Singapore, known from the Philippines.

Chrysopa nigribasis Bks.

From Samawang, July. Known from several places in the Malaysian subregion.

Chrysopa alticola sp. n.

Pale yellowish, head and palpi unmarked, basal joint of antennae usually with some red on outside; pronotum sometimes shows a red spot each side in front; legs and body otherwise unmarked. Wings hyaline, with yellowish veins, cross-veins more or less dark, costals at ends, first radial entirely, others in part dark, basal cubital cross-veins entirely, and both series of gradates dark, the outer ones sometimes only faintly dark, and always the origin of radial sector with the cross-vein back to third cubital cell, and the fork of first anal near end both black and almost margined with dark; in hind wings the veins pale. Antennæ very long; pronotum as broad as long, narrowed in front. In fore-wing six inner and usually ten outer

gradates in sub-parallel series, the outer row scarcely nearer to outer margin than to inner series; before the base of inner series are three or four cross-veins between the basal branches of radial sector (those that run into the medius); about 26 costal cross-veins, those near basal third oblique; outer marginal forks long; in hind wing six to eight gradates in subparallel series, and before base of inner row are several others as in the fore-wing.

Length of fore-wing 15 to 16 mm.; breadth of fore-wing 5.5 to 6 mm.

From Mt. Kinabalu, Kamborangah, 7,200 ft., March and April, and Lumu Lumu, 5,500 ft.

By the cross-veins before the inner series of gradates it is related to *C. javanica* Petersen, but differs from that in the red on basal joint of antennae, in the more narrow costal cells, and the much longer outer marginal forks, the black forked veins near base, and the inner gradates as dark or darker than the outer series.

***Chrysopa ilota* Bks.**

From Kudat, Sept., and Sandakan, July. Described from the Philippines.

***Chrysopa obliquata* Bks.**

From Kinabalu, Marei Parei, 5,000 ft., April; and Lumu Lumu, 5,500 ft., April; described from the Philippines.

***Chrysopa flaveola* Schneider.**

From Bettotan, July. Known from various places in the Malaysian subregion.

***Chrysopa eurycista* Navas.**

From Kudat, Sept., and Bettotan, Aug., widely spread in the Malaysian subregion.

***Nothochrysa ferruginea* McLach.**

From Kudat, Sept. Known from other parts of Borneo.

***Ankylopteryx nervosa* Navas.**

From Bettotan, July, Kudat, Sept. Known from the Philippines.

***Ankylopteryx nonelli* Navas.**

From Bettotan, 13 Aug. Known from Borneo and Philippines.

***Sencera anomala* Brauer.**

From Bettotan, July, Aug. Widely spread in the Malaysian subregion.

HEMEROBIIDÆ.

***Berothiinae*.**

***Acroberotha nicobarica* Navas.**

One from Bettotan, 17 Aug. Widely spread in Malaysian subregion.

Berotha borneensis Navas.

From Bettotan, 16 Aug.

Berotha piepersi Weele.

From Kudat, 5 Sept.; known from Java, Sumatra and the Malay Peninsula.

Hemerobiinæ.**Notiobiella minima** Bks.

From Bettotan, 27 July.

Notiobiella valida Bks.

From Bettotan, 17 Aug.

MANTISPIDÆ.**Mantispa newmani** Bks.

From N. Borneo; Bettotan, July and August. Described from Borneo.

Eumantispa fuscata Navas.

Mt. Kinabalu, Kamborangah, 7,200 ft., 18 April. Described from Celebes.

OSMYLIDÆ.

Four species of Osmylids were taken, belonging to four genera as they are now classified, but many of the genera of this family are hardly of subgeneric value, and a conservative classification is badly needed. The four forms may be tabulated as below.

1. Between median and cubitus several cross-veins are absent beyond the first, leaving a break in the series
.....2.

Between median and cubitus no cross-veins skipped, in fairly even series; wings fairly broad; with black near middle of each wing, 12 to 15 cubital cross-veins; five or more series of gradates.....*Thaumatosmylus*.

2. Cross-vein between radial sector and median is out on first branch of radial sector; ten or twelve cubital cross-veins; five or more gradate series; subcosta and radius with some black streaks in pairs; a swollen black-veined spot on hind margin of fore-wings.....*Spilosmylus*.

The first cross-vein between radial sector and median is before the forking of radial sector; no paired streaks on subcosta and radius.....3.

3. Wings elongate; about 10 or 12 cubital cross-veins; five or more gradate series; first anal runs out as far as second cross-vein from cubitus to median.....*Heliosmylus*.

Wings broad; about four or five cubital cross-veins, about four series of gradates; first anal short, runs out before second cross-vein from median to cubitus.....*Stigmatosmylus*.

***Spilosmylus modestus* Gerst.**

From N. Borneo; Bettotan, 15 Aug., and Mt. Kinabalu, Kenokok, 3,300 ft., and Lumu Lumu, 5,500 ft., April. Occurs also in the Philippines and Java.

***Heliosmylus fraternus* sp. n.**

In general this species is similar to *H. krugeri* as figured by Petersen. Face mostly pale, darker on sides and below, dark spot above antennæ, the antennæ dark, but basal joint more or less pale; legs pale, tarsi sometimes darker; abdomen brown; thorax mostly brown, pronotum rather broader than long, pale, with broad lateral and a narrow median strip black. Fore-wings with brown or black veins, slightly interrupted with pale, more on costals than elsewhere, subcosta scarcely at all marked, radius brown at ends of cross-veins, between radius and subcosta a few small brown spots. Wing heavily marked with brown spots, those in costal area mostly oblique; all long outer and hind margin is a long brown streak a little removed from the margin, but with numerous connections to it; heavy brown marks over outer gradates and between them and the series before; along cubitus are three groups of dark brown spots; elsewhere many smaller brown spots, often transverse, and sometimes tending to form transverse bands, but not as plainly so as in *H. krugeri*; the stigma is a yellow spot, with a brown spot at each side. In hind wings the veins are mostly brown, a few faint clouds between subcosta and radius, outer and hind margin distinctly clouded, outer gradates margined with brown, also the outer cross-veins between branches of median. Wings elongate, in fore-wings between cubitus and median one or two veins lacking beyond the first (often some dark marks across the cell); the first cross-vein between radial sector and median is before forking of radial sector; five or six rows of gradates, but before them many irregular cross-veins; about twelve to fourteen cross-veins between forks of cubitus; about fifteen radial cross-veins; and about fifteen branches of radial sector. In hind wings the cubitus extends out to about middle of wing.

Length of fore-wing 21 mm.; width 6 mm.

From Borneo; Mt. Kinabalu, Kamborangah, 7,200 ft., and Lumu Lumu, 5,500 ft., April.

***Stigmatosmylus pretiosus* sp. n.**

Head pale; face with two black spots on clypeus, one each side above mandibles, and one each side under antennæ tending to form an angulate band; vertex with a broad black spot with a median extension in front; tips of palpi dark; basal three joints of antennæ mostly dark, beyond very pale; pronotum largely dark, pale marks in middle and sometimes on sides; thorax mostly pale, much spotted

above with dark, the meso-scutellum yellow; abdomen dark, some pale spots near base; legs pale, tips of tarsi dark. Wings mostly hyaline; venation pale, with dark dots and streaks; subcosta almost wholly pale, radius with scattered dark dots, between are three dark spots, even the gradates not wholly dark; fore-wing more or less heavily spotted with dark brown (sometimes in teneral specimens the spots are very faint); a large one at stigma, another on upper end of penultimate gradate series, a large one at base, two or three smaller spots between radius and radial sector, two on cubitus and two on hind margin, these latter before middle of wing, elsewhere a few small spots, but apical third free, also the costal field, but a few spots along costal edge. In hind wings the veins mostly pale, but dark near stigma and a few dark dots on the radius, a prominent dark stigma, and sometimes a few gradates dark. In fore-wings a vacancy between first and next cross-vein between medius and cubitus; the cross-vein between radial sector and median is about its length before forking of radial sector; only about four cross-veins between branches of cubitus; about eight or ten between radius and radial sector; about nine branches of radial sector; about four series of gradate veinlets, the outer row far apart. In hind-wings the cubitus does not extend out to middle of wing.

Length of fore-wing 16 to 18 mm.; width of fore-wing 6.5 to 7 mm.

From Borneo; Mt. Kinabalu, Kamborangah, 7,200 ft., and Lumu Lumu, 5,500 ft., April.

***Thaumatomyia delicatus* sp. n.**

Head pale; face unmarked; vertex with a dark spot or lines; second joint of antennæ dark, and often a mark on outer side of first joint, rest very pale; palpi and legs pale; pronotum pale, dark marginal stripes; pleura pale, thoracic notum mostly black (except pale in teneral specimens); abdomen brown. Wings very delicate, largely hyaline, often (teneral) but little marked; a spot beyond stigma, several clouds in costal area, two rather large smaller spots along the cubitus, on outer gradates and faintly elsewhere; hind-wings with spot beyond the stigma, several along subcosta and on gradates, one or two large ones in basal posterior part. In well-colored specimens these marks are dark brown; fore-wing usually with six large spots, three in costal area (often extending over radius), one beyond stigma, one on certain outer gradates, and one near end of the cubitus; several other smaller spots, some near base. In hind-wings a spot beyond stigma, one on outer gradates and two on basal part, smaller ones near end of cubitus. Pronotum a little longer than

broad, narrowed in front. Fore-wings broad; very densely veined, cells in basal part rarely longer than broad; no veins missing between median and cubitus (except in one or two specimens); first cross-vein between median and radial sector before forking of radial sector; about seventeen cross-veins between cubital forks, about seventeen between radius and radial sector; eleven branches to radial sector; five series of gradates and before them irregular; in hind-wings the cubitus runs out much beyond middle of wing. In both wings a corneous black dot in middle of a cell before middle of length and before middle of width. Venation of fore-wing almost wholly pale, but dark on dark spaces, subcosta and radius also pale, between them is a number of dark spots; in hind wing venation almost wholly pale.

Length of fore-wing 15 to 19 mm.; width of fore-wing 7 to 8 mm.

Over thirty specimens from Mt. Kinabalu, Kamboranhah, 7,200 ft., and Lumu Lumu, 5,500 ft., April and last days of March.

MYRMELEONIDÆ.

Neuroleon disjunctus Bks.

From Jesselton, March; known from the Philippines.

Distoleon dirus Walk.

From Mt. Kinabalu, Kiau, 3,000 ft., April. All over the Malaysian subregion.

Hagenomyia nicobaricus Brauer.

From N. Borneo; Bettotan, 9 Aug. Widely spread in the Malaysian subregion.

Myrmeleon celebensis McLach.

From Kudat, N. Borneo, 9 Sept. Common on all the neighboring islands.

PANORPIDÆ.

Neopanorpa flavicauda sp. n. (figs. 6, 8.)

Black; basal joint of antennæ pale, and a pale streak each side of beak below eyes; last three segments of the abdomen pale yellowish; legs yellow brown. Wings clear, with almost black marks, these similar to *N. formosana* or heavily marked *N. appendiculata*, but the apical band has no pale spot behind, and the posterior side of the fork of the stigmal band is broad like the anterior side, and the sub-basal band is more oblique, especially behind; the hind wings are marked in the same way. The venation is like that of *N. appendiculata*. In the male the tip of third segment has a median triangular process longer than in *N. appendiculata*, about half way across fourth segment; sixth segment cylindric and plainly longer than fifth; seventh

and eighth shorter than sixth, the seventh longer than the eighth. Male claspers contracted at base, and with a large lobe near inner base.

Expanse 28 mm.

From Mt. Kinabalu, Kenokok, 3,300 ft., April.

TRICHOPTERA.

SERICOSTOMATIDÆ.

Goerinella grandis sp. n. (figs. 1, 3, 4, 9.)

♂ Mostly pale brown, basal joint of antennæ darker; palpi, legs, and venter of abdomen pale yellowish, tip of abdomen nearly black. Fore-wings clothed with small scale-like hairs, largely yellow, and more scattered erect hairs, often yellow, but sometimes black, and especially dense and long toward base of wing; two hyaline white spots, one at connection between fork two and medius, other at forking of medius. Hind-wings with fine short gray hair, fringe toward posterior base very long. Structure similar to others of genus; the male palpi recurved, very slender, and with a large tuft of hair at tip; basal joint of antennæ very long, curved, thickened toward tip, behind on basal part with a long curved spine or spur; the hair brown, particularly dense in part of front. Venation of fore-wing similar to *G. piscina*, but costal area not so broad, the apical part of wing, and consequently the apical cells longer. Venation of hind-wing also resembles *G. piscina*, but costal area is much narrower, and space between discal cell and median vein is wider. In a female (from same locality and date) the color is same as male; the basal joint of antennæ long and straight, rather longer than breadth of the head; the venation is practically that of a *Goerodes*, but the front part above radial sector is not so broad.

Expanse 28 mm.

From Mt. Kinabalu, Pakka, 10,200 ft., 23 March.

Micrasema borneensis sp. n. (fig. 13.)

Dark brown, head and basal joint of antennæ densely clothed with almost black hair, antennæ beyond very pale and gradually becoming dark; abdomen dark, with circles of long hairs; legs brown, hind pairs paler. Wings brown, uniform, outer fringe nearly black. Venation of male almost exactly like *longulum*, in hind wings fork 1 is not quite as long; in female similar to *longulum* but fork 2 is distinct and long in hind wings, in fore wings fork 3 reaches almost back as far as discal cell, scarcely pedicellate, and fork 4 reaches back a little farther than fork 3, and there is a cross-vein from fork 5 to anal vein. Spurs 2, 2, 2.

Expanse 17 mm.

From Mt. Kinabalu, Pakka, 10,200 ft., 20-25 March.

LEPTOCERIDÆ.

Genus *Allosetodes* gen. nov.

A Leptocerid; spurs 1, 2, 2, legs slender; basal joint of antenna long and large. Wings slender, acute at tips, with very long fringes venation reduced in the median area; a large, long discal cell, fork 1 pedicellate; fork 2 from lower apex of discal cell, rather wide at base. Behind this the median vein simple, almost a branch from the discal cell, but extended a little basally where it runs out; the cubitus has a short fork 5, and behind three anals. Hind wings with two forks, fork 1 is fairly long, and other fork is much longer and behind the first, and then three anals.

Allosetodes plutonis sp. n. (figs. 5, 7, 14.)

♂ Black; antennæ, palpi, and legs brown; fore-wings black, but with several large brown spots, two along the costa, reaching backward some distance, several in the apical parts of the apical cells, and one at the base of wing behind; these brown spots in the proper light show golden reflections; outer fringe largely brown, but with several black patches, one of them particularly prominent is at the extreme tip. Hind wings black, with long black fringe.

Expanse 12 mm.

From Mt. Kinabalu, Pakka, 10,200 ft., 25 March.

Notanatolica gilolensis McLach.

From N. Borneo; Bettotan, 17 Aug. Widely spread in the Malaysian subregion.

HYDROPSYCHIDÆ.

Macronema splendens sp. n. (fig. 2.)

♂ Head yellow, dark each side of face near eyes with a silvery sheen; palpi yellowish; antennæ yellow on basal joint, several joints beyond dark brown, but farther out the joints are pale with dark tips; legs yellowish, front tibiæ dark on outer side, mid tibiæ dark at tips and on tips of tarsi, spurs pale; thoracic notum black; abdomen brown. Fore-wings dark brown, with large yellowish marks occupying about half of surface, all pale in the membrane: three large costal spots, not far apart, the outer one extending back to a rounded spot, in upper apical area a smooth pale spot beyond cell, in lower outer part two broad curved pale marks, on the hind margin a large, nearly square, mark, and before it a long pale streak to near base where it is deep black, in the anterior basal part a curved pale streak. Hind-wings

brownish, apex darker, costal area to near tip broadly hyaline. Fork one in fore-wings with a pedicel about equal to discal cell. Hind tibiae of male with fine white hair behind.

Expanse 19 mm.

Seven specimens from Bettotan near Sandakan, North Borneo, in July. In general similar to the Chinese *M. hospitum* as figured by Knight in the Seys Monog. plate IV, fig. 29, but the basal and posterior spots are different.

Macronema distinguendum Ulmer.

From N. Borneo; Bettotan, 28 July; and Mt. Kinabalu, Lumu Lumu, 5,500 ft., 13 April.

Macronema pallipes sp. n.

♀ Pale yellowish throughout; a silvery white spot in front of each eye; the antennæ, beyond basal joint, dark on the upper side. Wings clothed with short appressed yellow hair, no median band, nor dark on tip; legs wholly pale. In general very similar to *M. fasciata*; the wing is longer in apical part than in *fasciata*, the 2nd, 3rd, 4th, and 5th apical cells longer than width of wing at anastomosis. The discal and median cells also rather longer than in *fasciata*.

Front wing long 14 mm., wide 4.5 mm.

From Mt. Kinabalu, Marei Parei, 5,000 ft., April.

Differs at once from *M. fastuosum* and *M. fasciata* in having pale tibiae and tarsi, thus agreeing with *M. 5-punctata* of the Philippines, but it lacks the spots. The yellow of fore-wing is not as deep or as near orange as in most of *M. fastuosum*.

Hydropsyche isolata sp. n. (fig. 11.)

♂ Head with mostly yellowish hair, a tuft of brown each side on vertex; thorax with yellowish hair; antennæ pale, obliquely annulate with brown; palpi pale brown; legs yellowish, spurs a little darker; abdomen brown above, pale beneath. Fore-wings yellowish, densely and evenly marked with many small brown spots, in apical part tending to form wavy bands, no larger spots, outer fringe dark, interrupted with pale; hind-wings yellowish-gray with darker gray fringe. In fore-wings the venation very similar to *H. pellucidula*, but the discal cell is larger, about as broad and three-fourths the length of the median cell, and the fork 5 extends back as far as fork 4. In the hind-wings also similar to *pellucidula*, but the cross-vein between branches of medius out farther than the last, the fork 3 rather shorter, and cubitus at base of fork 5 runs very close to median vein,

Expanse 18 mm.

From Mt. Kinabalu, Kiau, 3,000 ft., 23 March.

***Hydromanicus formosus* sp. n.**

♂ Black; head and thorax with golden yellow hair; palpi pale; antennæ and legs dull yellowish, the femora brown, spurs pale. Fore-wings rich dark brown, with many scattered spots of golden yellow; six along the costal margin, two of them before middle rather large; five large ones in anal part, one at base, one on the cubitus and three along the margin, the middle one the longest, the last extending up over base of fork 5. Along outer margin is a rather small spot in each cell; similar small ones in the area above median vein to near base, other areas with small ones, two in the discal cell, several larger ones in apical part of wing, some of them tend to form a band. Hind-wings dark gray, veins and fringe darker. In fore-wings discal cell is about two and a half times longer than broad; fork 1 with pedicel about equal to width of discal cell; fork 2 back about one-half way on discal cell; fork 3 as far back as fork 2; fork 4 back as far as fork 5; all apical cells long and narrow. Cross-vein from cubitus to first anal vein obliquely backward, and before forking of median vein; cross-vein from lower median to the cubitus is before base of discal cell; between forks 3 and 4 the cross-vein is out some distance on fork 3. In hind-wings fork 1 is very short, fork 2 reaches the cross-vein behind, fork 3 short pedicellate.

Expanse 25 mm.

From Mt. Kinabalu, Marei Parei, 5,000 ft., 27 April. The most handsome species of the genus.

***Sciops elongatus* sp. n. (fig. 10.)**

Brown; head and thorax with dark brown hair; antennæ yellowish, scarcely annulate, rather strongly crenulate; palpi brown; legs yellowish, spurs more brown; abdomen dark brown. Fore-wings brown, uniform, no spots, except a hyaline white line at forking of the median vein and along the upper branch. Fore-wings long as in *Hydromanicus*, but discal cells long, and subcosta and radius of hind-wing end as in *Sciops*. In fore-wings the discal cell is over five times as long as broad, in hind-wings fully six times as long as broad. In forewings fork 1 has a rather short pedicel, fork 2 extending back on discal cell about width, fork 3 long pedicellate, fork 4 very long, as far back as fork 5; the cross-vein from discal cell to radius not its length from end of discal cell, the cross-vein from discal cell to medius a little before fork 2, and the next a little beyond the latter. Venation of the hind-wings similar to that of *S. marginatus*, but fork 5 is wider,

Expanse 18 mm.

From Mt. Kinabalu, Kamborangah, 7,200 ft., Marei Parei, 5,000 ft., and Lumu Lumu, 5,500 ft., last of March and early April.

Sciops oculata sp. n. (fig. 17.)

♂ Head brown, with brown hair; eyes very large, at vertex separated by scarcely more than the width of a basal antennal joint; palpi brownish; antennæ pale, faintly annulate, distinctly crenulate; legs yellowish, spurs rather darker, front femora above dark; abdomen dark at tip, pale on base; thorax black with mostly black hair. Fore-wings pale, mostly clothed with fine whitish hair, a large dark spot at stigma, a couple on costa before this, one over end of anal vein, distinct dark irrorations in apical area, and fainter ones elsewhere. In hind wings pale gray. Fore-wings elongate, but discal cell long and radius and subcosta of hind-wings as in *Sciops*; discal cells in both wings over four times as long as broad. In fore-wing fork 1 with pedicel one-half its length, fork 2 reaching back its width on discal cell; fork 3 but little longer than its pedicel; fork 4 as long as fork 5; cross-vein between branches of median is opposite base of fork 2; cross-vein from discal cell to median vein is its length before fork 2. Venation of hind wing as in *S. marginatus*, but fork 5 is broader.

Expanse 17 mm.

From Mt. Kinabalu, Marei Parei, 5,000 ft., 28 April.

Known by its pale color, and large eyes; by its elongate wings related to *S. elongatus*.

Sciops pallidus sp. n. (fig. 13.)

Head and thorax yellow, clothed with yellow hair; antennæ, palpi, and legs pale yellowish; abdomen brown. Fore-wings and hind wings pale brownish-yellow, clothed with pale hair, no markings, fringe dark gray. Wings moderately short, but not as broad as in *S. fasciatus*; discal cell in fore-wing over four times as long as broad, in hind wings about six times as long as broad; fork 1 hardly longer than pedicel, fork 2 scarcely back on discal cell, fork 3 with pedicel nearly its own length, and fork 4 not as far back as fork 5; cross-vein from discal cell to medius over its length from fork 2, cross-vein from medius to cubitus is just before medius forks, cross-vein between branches of medius out its length on fork 4. In hind wing from where the subcostal bends up the radius practically unites with the radial sector till the radius itself bends up to costa; fork 1 and fork 3 both very short, fork 2 scarcely back on discal cell, fork 5 broad, fully as broad near base as at tip.

Expanse 12 mm.

From North Borneo, Bettotan, 24 July. Distinct by uniform pale color of wings and the yellow head.

Sciops fasciatus Ulmer

From North Borneo, Bettotan; 23 August, common in the Philippines.

Polyplectropus irroratus sp. n. (fig. 16.)

♂ Head with dense long dark brown hair, some golden between and just above antennæ; palpi brown; antennæ pale, strongly annulate with brown; thorax with brown and golden hair; legs brown, femora more yellowish, spurs brown; fore-wings brown, densely irrorate with golden yellow spots; in anal area in regular bands, elsewhere more or less in bands, fairly large brown spot before and beyond stigma, the yellow costal spots on basal part of wing are far apart; fringe black, outer part interrupted with yellow; hind-wings gray brown, with a darker fringe. In fore-wings discal long, but not equal to fork 2; fork 1 much shorter than pedicel, fork 3 also shorter than pedicel, fork 4 only a little before fork 3, fork 5 very large (as usual); venation of hind-wing like that of *P. javanicus*.

Expanse 13 mm.

From Mt. Kinabalu, Kiau, 3,000 ft., 1—3 April. Distinct by heavily spotted wing and male genitalia.

Polyplectropus unicolor sp. n. (fig. 12.)

Head and pronotum with dense dark brown hair; palpi pale brown; antennæ pale, broadly annulate with brown; legs yellow brown, spurs rather paler; fore-wings nearly black, uniform, a faint hyaline white mark at end of anal vein, and on forking of median to cubitus; hind-wing gray, upper apical part darker. In fore-wings the discal cell is long, almost as long as the second apical cell; fork 1 about equal to pedicel, fork 3 not further back, and fork 4 only a little before fork 3, fork 5 very long (as usual). Venation of hind-wings as in *P. javanicus*. Ventral plate of female emarginate in middle.

Expanse 17 mm.

From Mt. Kinabalu, Kamborangah, 7,200 ft., March. Differs from all others of the genus in uniform dark wings.

Chimarraha atripennis sp. n.

Deep black, with black hair on head and thorax, front tibiae and tarsi pale. Wings black, fore-wing with three hyaline white spots, one up from end of anal vein, one from base of fork 2 to median vein, and one before this connecting the branches of median vein. Wings rather long and slender, discal cell pointed at base, over three times as long as broad; the radial sector before the cell is not bent upward, but curves downward much as in *C. concolor*, the upper branch of radial sector at base of discal cell is not thickened; apical cells long and narrow; cross-vein from discal cell fully

its length before fork 1. In hind wings the discal cell is also very long, fork 1 is pointed at base at tip of discal cell, fork 3 fairly long and slender.

Expanse 13 mm.

From Mt. Kinabalu, Marei Parei, 5,000 ft., and Kiau, 3,000 ft., both April. By pale tibia and tarsus of front leg related to *C. pedalis*, but venation somewhat different.

HYDROPTILIDÆ.

Paduniella borneensis sp. n.

♀ Palpi brown; antennæ pale on basal third and narrowly annulate with brown, beyond becoming dark brown; head with brown hair in front, above with mostly gray hair; legs yellowish-brown; abdomen nearly black above, last segment yellowish, truncate. Fore-wings gray, with gray and much yellowish hair, nearly uniform color throughout, fringe on outer front margin nearly black, posterior fringe gray, but with some yellow patches near outer angle; fringe of hind wings gray, very long. In fore-wing the venation is much as in *P. semarangensis*, but fork 5 has upper side shorter, and discal cell rather shorter; in hind wing venation practically same as the Javan species, but the hind wing is not as acuminate at tip, the outer posterior margin not or scarcely concave.

Expanse 8 mm.

From Mt. Kinabalu, Kiau, 3,000 ft., April.

Explanation of Figures.

- Fig. 1—*Goerinella grandis*, fore-wing.
 „ 2—*Macronema splendens*, fore-wing.
 „ 3—*Goerinella grandis*, head.
 „ 4— „ „ hind-wing.
 „ 5—*Allosetodes plutonis*, hind-wing.
 „ 6—*Neopanorpa flavicauda*, genitalia, above.
 „ 7—*Allosetodes plutonis*, front wing.
 „ 8—*Neopanorpa flavicauda*, genitalia, side.
 „ 9—*Goerinella grandis*, genitalia, side.
 „ 10—*Sciops elongata*, genitalia, side.
 „ 11—*Hydropsyche isolata*, genitalia, side.
 „ 12—*Polyplectropus unicolor*, genitalia, side.
 „ 13—*Sciops pallidus*, genitalia, side.
 „ 14—*Allosetodes plutonis*, genitalia, side.
 „ 15—*Micrasema borneensis*, genitalia, above.
 „ 16—*Polyplectropus irronata*, genitalia, side.
 „ 17—*Sciops oculata*, genitalia, above.
 „ 18—*Protohermes bellulus*, genitalia, below.
 „ 19— „ *uniformis*, genitalia, side.
 „ 20— „ „ „ below.



